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**PALEONTOLOGY.**—*New Desmoinesian crinoids*. HARRELL L. STRIMPLE, Bartlesville, Okla. (Communicated by Alfred R. Loeblich, Jr.)

*Glaukosocrinus*, n. gen., is here proposed with *G. parvisculus* (Moore and Plummer), n. comb. as the genotype species. Description of *Aesiocrinus erectus*, n. sp., *Acrocrinus expansus*, n. sp., *Lecythiocrinus optimus*, n. sp., and *Schistoocrinus ovalis*, n. sp., is given. All figured specimens are from exposures of the Oologah limestone formation, sometimes referred to the Altamont limestone of Kansas, Des Moines series, Pennsylvanian, located east of Tulsa, Okla.

***Glaukosocrinus*, n. gen.**

Dorsal cup moderately low truncate, semi-globular with deep basal invagination. Columnar scar small, round, occupying the median portion of a relatively large IBB circle. Five small IBB are restricted to basal concavity. Five moderately large BB form a part of the lateral calyx walls and flex strongly inward to form sides of the basal concavity. Five large RR have short articulating processes which are directed mildly outward. Outer surfaces of RR curve in to form adsutal slopes between articulating facets. Anal X is large, pentagonal and does not extend into the interbrachial region. RA is pentagonal and rests on r. post. and post. BB. It supports a small pentagonal RX, which extends only slightly into the interbrachial area.

*Genotype.*—*Malaioocrinus parvisculus* Moore and Plummer (1940).

*Known range.*—Des Moines series, Pennsylvanian; North America.

*Discussion.*—This form was referred to *Malaioocrinus* Wanner (1924) by Moore and Plummer (1940). It has certain characteristics superficially similar to that genus and may represent a trend of specialization leading to the genus but certain factors seem sufficient to warrant separation. *Malaioocrinus* has anal plates of normal structure

in normal (primitive) arrangement. Anal X is hexagonal. In *Glaukosocrinus* the anal plate is pentagonal and does not extend above the normal cup height. The radial articulating facets of *Malaioocrinus* are long, directed strongly outward and the columnar scar is very large, almost entirely covering the IBB plates. *Glaukosocrinus* has short radial articulating facets directed only slightly outward and the columnar scar is small.

***Glaukosocrinus parvisculus* (Moore and Plummer), n. comb.**

Figs. 13-16

This species has been adequately described. The specimen figured herein was collected by the author in the stone quarry some 7 miles east of Tulsa, Okla.

**Genus *Aesiocrinus* Miller and Gurley, 1890**  
***Aesiocrinus erectus*, n. sp.**

Figs. 9-12

Dorsal cup is broad, truncate bowl-shaped. Five IBB form a large pentagonal-shaped disk with slightly depressed median section. Five large BB curve into the subhorizontal basal area but also comprise a good portion of the lateral cup walls. Five large RR have arm articulating facets directed slightly outward and not entirely filling the distal faces of the plates. Outer ligament furrow is shallow but well defined. Ligament pit furrow is shallow and ligament pit is sharply impressed. Transverse ridges are sharply defined, narrow lateral furrows are backed by unusually long oblique ridges. Muscle scars are limited in area and are deeply impressed. Intermuscular notches and furrows are broad and short. The right shoulder of l. post. B is extended and has an extra facet for reception of an anal tube plate. R. post. R and the anal plate are

missing in the holotype but measurements leave no doubt as to the existence of only one anal plate in the posterior interradius, which plate was in broad contact with the post. B.

The entire surface of the dorsal cup is mildly granular in appearance. Depressions occur at the apices of RR and BB. Columnar scar is decidedly pentagonal in outline. Maximum width of dorsal cup is 18.5 mm, height 8.2 mm.

*Remarks.*—The general contour of the dorsal cup of *A. erectus* is very similar to that of several species of *Plummericrinus* Moore and Laudon (1943) and is quite unlike that of any other species of *Aeciocrinus*. Characteristics, other than general appearance, in common with *Plummericrinus* are the depressions at the angles of BB and RR and the extension of the outer surfaces of RR into the adsutural area between the arm articulating processes. However, *Plummericrinus* has three anal plates in the posterior interradius and a round stem.

*Occurrence.*—Stone quarry some 7 miles east of Tulsa, Okla.

*Holotype.*—Collected by the author. To be deposited in the U. S. National Museum.

Genus *Acrocrinus* Yandell, 1846

*Acrocrinus expansus*, n. sp.

Figs. 1, 17-20

Dorsal cup is of moderate height, wide at the base and mildly constricted at the distal extremity. Two BB of equal size are confined to a shallow basal concavity. The walls of the basal depression are composed of two circlets of small

plates. Five RR are hexagonal and are adjoining except where interrupted by the large anal X in the posterior interradius. Articular facets are small, horse shoe shaped.

The BB and RR are separated by about six circlets of plates which are designated as intercalaries (ii). In the first circlet below the RR and anal X series, there are 12 hexagonal ii<sup>1</sup>, 14 ii<sup>2</sup>, 16 ii<sup>3</sup>, and 14 ii<sup>4</sup>. Exact placement of succeeding series is difficult owing to slight irregularities and the incipient nature of those nearest the BB. Plates of the posterior interray continue unbroken to the BB disk and also in the anterior ray. In other rays the series are broken. Considering the large number of plates the arrangement is remarkably symmetrical.

The columnar scar is very small and round. Arms and tegmen have not been observed. Cup plates are devoid of ornamentation. Greatest width of dorsal cup (basal) is 11.0 mm, width at distal extremity is 6.5 mm, height 9.0 mm.

*Remarks.*—*Acrocrinus wortheni* Wachsmuth (1882), *Acrocrinus pumpkensis* Strimple (1949), *A. brentwoodensis* Moore and Plummer (1937), and *A. pirum* Moore and Plummer (1937) have calices similar to the present species in general outline. They have broad basal areas and tend toward constriction in the distal extremities of the cup. *A. pirum* is elongated and has a greater number of plates than other species. *A. wortheni* has fewer plates and a different arrangement of intercalaries than found in *A. expansus*. *A. pumpkensis* has a limited number of intercalaries and the cup does not constrict so noticeably at the

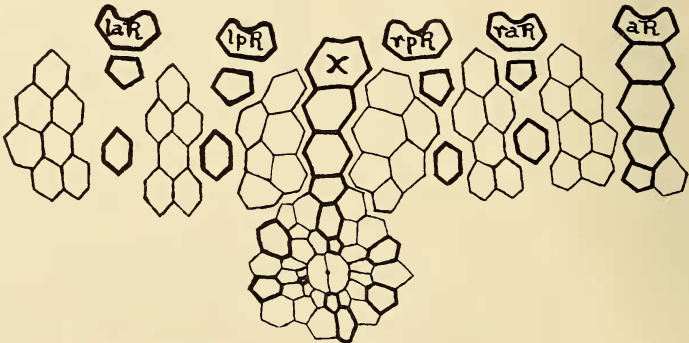
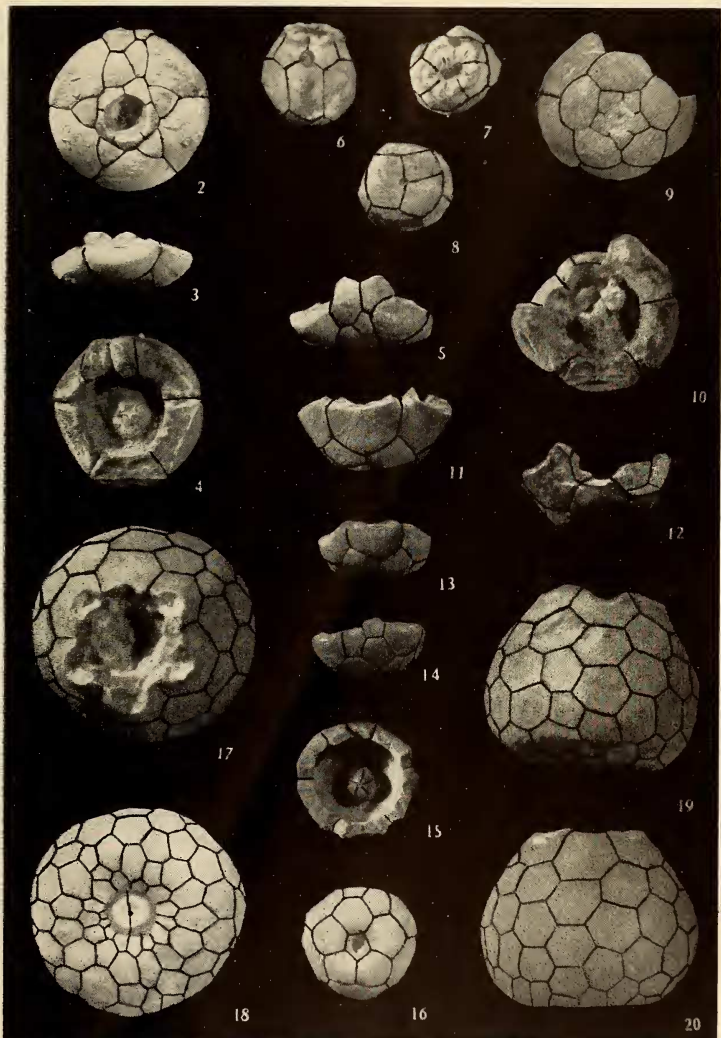


FIG. 1.—Diagrammatic sketch showing arrangement of plates in the holotype of *Acrocrinus expansus*, n. sp.



FIGS. 2-5.—Holotype of *Schistocrinus ovalis*, n. sp., from below, anterior, summit, and posterior,  $\times 1.8$ . FIGS. 6-8.—Holotype of *Lecythiocrinus optimus*, n. sp., from posterior, summit, and base,  $\times 1.8$ . FIGS. 9-12.—Holotype of *Acetocrinus erectus*, n. sp., from base, summit, anterior, and posterior,  $\times 1.6$ . FIGS. 13-16.—Typical representative of *Glaukosocrinus parvisculus* (Moore and Plummer), n. comb., from anterior, posterior, summit, and base,  $\times 1.8$ . FIGS. 17-20.—Holotype of *Acrocrinus expansus*, n. sp., from summit, base, anterior, and posterior,  $\times 3.5$ .

distal extremity. In *A. brentwoodensis* all RR are in contact with four plates in addition to lateral contact with adjoining RR, whereas in *A. expansus* only the two posterior RR have contact with four plates and the three anterior RR are each in contact with three plates.

The only other described Pennsylvanian species is *A. elegans* Strimple (1949) which has a slender, elongated cup.

*Occurrence*.—Stone quarry about 7 miles east of Tulsa, Okla.

*Holotype*.—Collected by Melba Strimple. To be deposited in the U. S. National Museum.

Genus *Lecythiocrinus* White, 1880

*Lecythiocrinus optimus*, n. sp.

Figs. 6-8

Dorsal cup is elongated, more or less spherical in outline. Three unequal IBB form a mildly up-flared, broad base. The smaller IB is right posterior. Five BB are long, hexagonal plates with proximal portions curved to join IBB plates. Five RR are small pentagonal plates with prominent, wide arm articulating facets. There is a pronounced reduction in width of RR as the upper edge of the cup is approached. An oval shaped opening is in the upper extremity of post. B and lower lateral portions of l. post. and r. post. RR. When the cup is viewed from above or below there is a mildly pentagonal outline due to slightly raised median areas in the proximal portions of BB.

Columnar scar is small, round. Arms and tegmen are unknown. The greatest width of dorsal cup is 10.4 mm, height 10.6 mm.

*Remarks*.—*L. optimus* differs from other described species in having broad, rather distended articulating processes. The outline of the cup is somewhat comparable to those of *L. adamsi* Worthen (1883) and *L. olliculaeformis* White (1880).

*Occurrence*.—Road cut on eastward extension of thirty-first Street, southeast of Tulsa, Okla.

*Holotype*.—Collected by Frank Crane. To be deposited in the U. S. National Museum.

Genus *Schistocrinus* Moore and Plummer, 1940

*Schistocrinus ovalis*, n. sp.

Figs. 2-5

Dorsal cup is shallow, bowl-shaped. In the median portion of a broad, shallow basal con-

cavity there is a sharply impressed, small, round columnar scar. Five IBB form a cog shaped disk surrounding the impressed area. Five small BB are more or less triangular shaped plates with the exception of post. B which is rather elongate and is truncated for reception of anal X. Five large RR are in solid contact with the IBB plates and prevent lateral contact between BB. Three anal plates are in normal (primitive) arrangement. RA is a narrow, elongate plate supporting the narrow proximal face of RX above and is in contact with anal X to the left. RX expands noticeably as it enters the interbrachial region. Anal X is a large, long plate.

All cup plates are unornamented. Arms and tegmen are unknown. The dorsal cup has a width of 16.6 mm, height of 3.5 mm.

*Remarks*.—*S. ovalis* is more comparable with *S. torquatus* Moore and Plummer (1940), the genotype species, than with other described forms. *S. torquatus* has more prominent IBB plates, the impressed basal area is entirely occupied by the columnar scar, BB have more angular proximal facets and the plates of the posterior interradius are more advanced in arrangement.

*Occurrence*.—Stone quarry about 7 miles east of Tulsa, Okla.

*Holotype*.—Collected by the author. To be deposited in the U. S. National Museum.

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